

Abstract

An integration function of an RF signal (i.e., a Fourier Transform of the voltage, current, phase and up to the fourth respective harmonic) is used to determine and predict etch rate and other etch chamber conditions. Different parts of the RF signal curve are integrated, thereby effectively separating the various zones of the signal, especially the strike and the steady state steps. After the parts are separated, each piece is analyzed separately and their contributions calculated and analyzed. By separating the etch into steps such as strike and the steady state, the effect of each process step on the total etch can be determined. The process can be used in plasma processing, equipment troubleshooting, and non-steady state plasma monitoring.